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TECHNICAL MEMORANDUM REPORT WCRD 53-46

APPROVAL VIBRATION TESTING OF LOW PRESSURE, OXYGEN  
CHECK VALVES FOR USE IN LOW PRESSURE, AIRCRAFT, OXYGEN SYSTEM

Prepared By  
Aero Medical Laboratory  
Directorate of Research



29 May 1953

Project No. S-2

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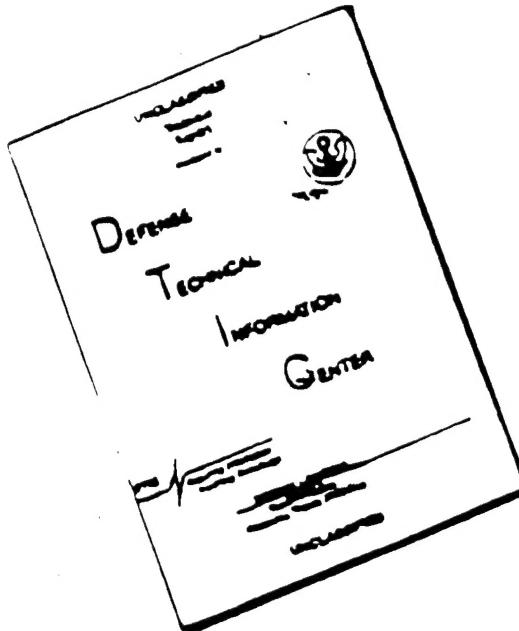
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Wright Air Development Center  
Air Research and Development Command  
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Wright-Patterson Air Force Base, Ohio

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APPROVAL VIBRATION TESTING OF LOW PRESSURE, OXYGEN,  
CHECK VALVES FOR USE IN LOW PRESSURE, AIRCRAFT, OXYGEN SYSTEM

I. PURPOSE

To report the results of vibration tests conducted on six low pressure oxygen check valves submitted to the Aero Medical Laboratory by A. Schrader's Son, Brooklyn, New York. The above valves were new and from an approved source.

II. FACTUAL DATA

1. The check valves were submitted by A. Schrader's Son, manufacturer of the subject valves. The valves were from an approved source and were approved valves under Specification AN-V-15a. The valves were submitted for qualification testing in accordance with the vibration paragraph of Specification MIL-V-7908. This test is not required in the old AN-V-15a Specification.

2. The following low pressure, oxygen, check valves were subjected to the vibration test:

AN6030-1 - Style A  
AN6031-1 - Style B  
AN6032-1 - Style C  
AN6033-1 - Style D  
AN6036-1 - Style G  
AN6037-1 - Style H

Since the low pressure, oxygen, check valves have been approved under Specification AN-V-15a, the tests listed in the vibration paragraph of Specification MIL-V-7908 were conducted in order to qualify the valves under Specification MIL-V-7908.

3. The valves were vibrated for a period of six hours at a frequency of from 300 to 3000 cycles per minute. A constant pressure of 450 psig was used on the valves.

4. After completion of the vibration test, the valves were checked for leaks with the pressure varying from 30 psig to 500 psig. The valves were immersed in clean water and no bubbles indicating leaks were evident at any pressure.

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5. The check valves were then disassembled and the valve seat and valve were checked. The valve seat material was of an approved silicone type. The valve poppet was of the approved design. These parts showed no wear.

6. Water-pumped nitrogen conforming to Specification MIL-N-6011 was used as the source of pressure in the above tests.

### III. CONCLUSIONS

Since the valves were from an approved source and were qualified under Specification AN-V-15a, the only test required was the vibration test under Specification MIL-V-7908. The valves passed this test.

### IV. RECOMMENDATION

That A. Schrader's Son, Brooklyn, New York, be continued on the Qualified Products List as an approved source for the manufacture of low pressure, oxygen, check valves.

### COORDINATION:

*Donald R. Good*

DONALD R. GOOD, WCRDE

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*for coordination*

IRVING H. LANTZ, WCRDE-3

*for V. C. Cain, Lt. Col. USAF (C)*  
CLARENCE C. CAIN, Lt. Col., USAF  
Chief, Aero Medical Operations

### PUBLICATION REVIEW

This report has been reviewed and is approved.

*for Robert H. Blount, Colonel, USAF (MC)*  
ROBERT H. BLOUNT, Colonel, USAF (MC)  
Chief, Aero Medical Laboratory  
Directorate of Research

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Brooklyn, New York